

From: [Tim Sullivan](#)
To: [Rankin, Dennis - Washington, DC](#)
Subject: Scoping comments related to San Luis Valley-Calumet-Comanche Transmission Project
Date: Tuesday, September 22, 2009 1:30:52 AM
Attachments: [Solar_San_Luis_Valley_4.14.09_FINAL2.doc](#)
[1_Solar_CO_Scoping_FINAL_8.13.09.doc](#)

The Nature Conservancy in Colorado wishes to offer information and comments as part of the scoping process for the San Luis Valley-Calumet-Comanche Transmission Project. The project area includes portions of the San Luis Valley and the southern Sangre de Cristo mountains that have been the focus of significant conservation efforts by The Nature Conservancy and other conservation organizations and agencies. We encourage the Rural Utilities Service to take the following issues into consideration during the Environmental Assessment process:

N-006-001

1. Impacts to key ecological values. There are a wide range of important ecological resources in the San Luis Valley and surrounding areas. The Nature Conservancy prepared a summary analysis of inventoried and mapped ecological resources for the use by the Bureau of Land Management in identification and evaluation of Solar Energy Study Areas in the San Luis Valley. A portion of the area analyzed for the BLM overlaps the study area for the proposed project. Attached to this e-mail are two documents prepared for the BLM which contain information about sensitive and important ecological resources in the San Luis Valley that should inform the Environmental Assessment for the project. In addition, the documents identify the full range of spatial data that are available for the project area and the sensitive species and habitats that the RUS should consider in their assessment.

N-006-002

2. Impacts to existing conservation investments. The proposed project traverses an area containing or close to lands that have been the focus of significant prior public and private conservation investments. These include conservation easements on private lands, lands owned and managed by conservation organizations, including The Nature Conservancy, national wildlife refuges, managed wetlands, national parks, wilderness areas and other designated conservation areas. Collectively, these conserved lands represent a globally significant resource due to the diversity of landscapes preserved, the connectivity of conserved lands, and the opportunity for long-term management of biological diversity in a changing climate. The Environmental Assessment for the project should consider the impact to the functioning of these collective conservation investments, not just the lands directly impacted by the project.

N-006-003

3. Possible alternatives to proposed project. Improved reliability of local electrical supply and transmission of new renewable energy generation are important objectives for the proposed project. However, there appear to be possible alternatives to meeting these objectives through alternative transmission routes or more effective use of existing transmission infrastructure. The Nature Conservancy does not have expertise suitable to judging the viability of these alternatives. We do believe, however, that any development of significant new transmission capacity within and exiting the San Luis Valley is likely to have impacts on important ecological resources in an area with such high concentrations of high quality habitat and

N-006-001: NEPA Process (In Review)

Your email/letter/comment form has been received and your comment noted. Tri-State Generation and Transmission Association, Inc. has requested financial assistance from the USDA Rural Utilities Service (RUS), for their anticipated ownership interest in the proposed San Luis Valley – Calumet - Comanche Transmission Project. RUS has determined that funding Tri-State's ownership interest is a federal action requiring analysis under the National Environmental Policy Act (NEPA).

RUS is the lead federal agency for NEPA, and will consult with other federal, state, and local agencies, and affiliated tribes as well as adhere to applicable regulations.

Additional information regarding the NEPA process can be found on the RUS project website at <http://www.usda.gov/rus/water/ees/envIRON.htm>. The Environmental Impact Statement is anticipated to be completed in late 2010 and will be available at <http://www.usda.gov/rus/water/ees/ea.htm>.

N-006-002: Land Use (In Review)

Your email/letter/comment form has been received and your comment noted. Potential impacts to land use from the proposed project and mitigation measures will be addressed in the Environmental Impact Statement.

The Environmental Impact Statement is anticipated to be completed in late 2010 and will be available at <http://www.usda.gov/rus/water/ees/ea.htm>.

N-006-003: Environmental Consequences (In Review)

Your email/letter/comment form has been received and your comment noted. Potential environmental consequences and mitigation measures from the proposed project will be addressed in the Environmental Impact Statement.

The Environmental Impact Statement is anticipated to be completed in

N-006-003

extensive distribution of sensitive species and communities. Given the likely impacts of any electrical transmission development, considerations of alternatives that would have the least impact to the environment seems necessary for this project.

I appreciate the opportunity to offer these comments and relevant information. Please let me know if we can provide additional information that would be of use in the assessment process.

Tim Sullivan
Acting State Director

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late 2010 and will be available at
<http://www.usda.gov/rus/water/ees/ea.htm>.



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Date: August 13, 2009
To: Solar Energy PEIS Team: Bureau of Land Management and Argonne National Labs
Cc: BLM Colorado State Office: Maryanne Kurtinaitis, Lands and Realty Program Lead
and Justice Rhodes, Environmental Coordinator
From: Tim Sullivan, Acting State Director, Colorado Field Office
Subject: **Scoping Comments on Solar Energy Study Areas in Colorado**

Dear PEIS Team:

Thank you for the opportunity to comment on the Solar Energy Study Areas (SESAs). Our comments build on those we submitted to BLM in the form of a “preliminary analysis” on April 14, 2009. At that time, we identified high potential conflicts between solar energy development and natural resource values across the San Luis Valley (SLV) as a whole. This latest set of comments “zooms in” on the four areas that BLM is proposing in the SLV and builds on the preliminary analysis to take into account additional species and vegetation values.

1) We were pleased to see that the areas have only very limited intersections with the high potential conflict areas, from a natural resources perspective, that we identified in the preliminary analysis.

Attachment 1 shows the SESAs overlaid with the high potential conflict areas that we identified in the preliminary analysis. As you may recall, for the preliminary analysis we collected available GIS layers for natural resource values the SLV, identified those that our scientists felt would be *most sensitive* to disturbance by solar energy development, and then overlaid these values. The resulting map included the most significant values from our scientists’ perspectives, and for which we had available data. Specifically these values included:

- Bald eagle roost sites and winter concentration areas
- Bighorn sheep production areas and severe winter range
- Gunnison sage-grouse production areas, severe winter range, winter range, and overall range
- Globally imperiled plants and natural communities as ranked by CNHP
- Riparian areas
- Potential Conservation Areas as identified by the CNHP
- Sandhill crane habitat

Of those values, the only clear intersections with the SESAs include riparian areas for the Los Mogotes East and Antonito South Areas.

According to the preliminary analysis, there is also an intersection between sandhill crane habitat and the Fourmile East SESA. However, we do not believe that the habitat actually extends into Fourmile East given what we know of the terrain, and based on a map of sandhill crane distribution we acquired from USFWS after submitting the preliminary analysis to BLM. For the preliminary analysis, we had mapped a simple approximation of sandhill crane habitat by buffering all conservation easements and wildlife refuges by 1,000 feet. The USFWS map is more accurate in the pertinent area and does not appear to intersect the Fourmile East SESA.

2) There are additional intersections between the SESAs and key natural resource values beyond those that we reviewed for the preliminary analysis. We urge BLM to proactively address impacts to these and other natural resource values.

Following the preliminary analysis, we reviewed additional GIS layers with species and vegetation values and noted intersections with the SESAs. We did not have sufficient data for one key value in particular -- waterfowl/shorebird habitat -- and would suggest that BLM work with CDOW, FWS, and others to assess potential impacts. The added values for which we did identify intersections with one or more SESAs include:

- Gunnison's prairie dog colonies – active
- Gunnison's prairie dog colonies – unknown
- Landscape intactness
- Riparian areas (also noted in the preliminary analysis)
- TNC portfolio sites
- Bald eagle winter forage
- Pronghorn winter concentration
- Known elk highway crossing
- Elk severe winter range

Attachment 2a provides more detail about these intersections and includes considerations for how BLM could address impacts to these resources. Attachment 2b provides maps of these intersections. Attachment 3 shows the full list of GIS layers collected and/or reviewed for intersection with the SESAs.

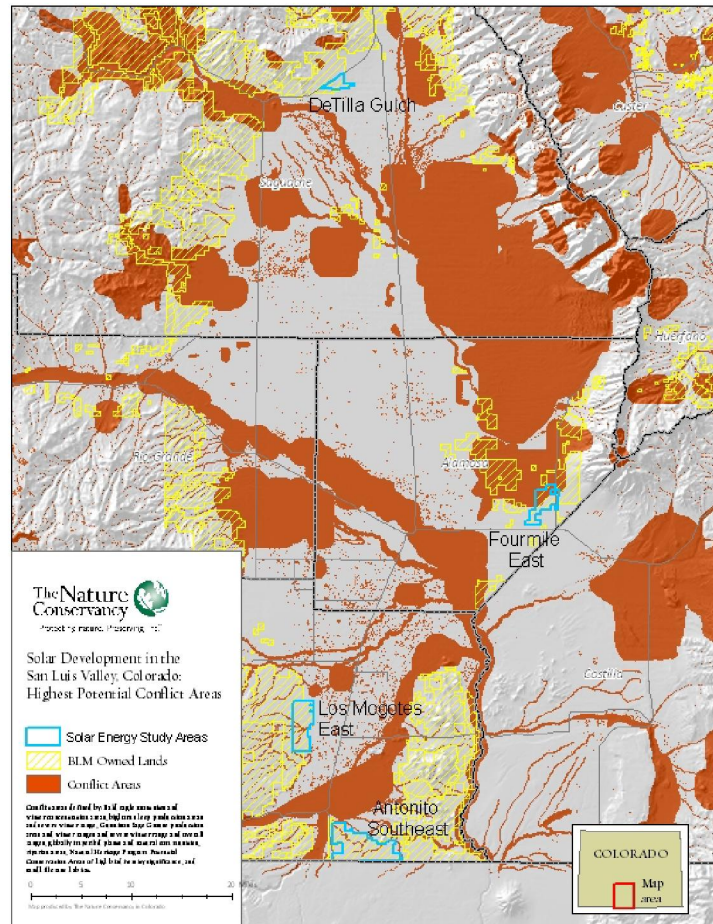
3) Assess the environmental impacts of transmission that would be associated with each of the Study Areas.

As part of your analysis, identify the impacts of transmission associated with the Study Areas. Since we do not have knowledge of what new routes may be, we do not have the ability to offer specific comments at this time. BLM may want to follow the current transmission planning efforts in the Valley if it is not already doing so. See for example Colorado Public Utilities Commission Dockets #0A-324E and #09A-325E - Tri-State (and Public Service Company of Colorado) Generation and Transmission CPCN for the San Luis Valley-Calumet-Comanche Transmission Project. Such an analysis would be especially important for such species as sandhill cranes, some raptors, and Gunnison sage-grouse.

4) We hope you will engage us in future conversations about solar energy siting. We appreciated the opportunity to share the preliminary analysis with the BLM State Office and the San Luis Valley Public Lands Center earlier this summer. We hope to continue these conversations, and wish to add real value to BLM's efforts to manage for species and vegetation while allowing for solar energy development. In particular, we have been gaining increasing experience working with BLM and other partners in identifying mitigation opportunities through our "Energy by Design" (EBD) process. As you may be aware, EBD is a science-based process to identify opportunities to avoid, minimize, reclaim, and offset impacts of development, based on goals for and anticipated impacts to species and vegetation (J. M. Kiesecker et al., 2009. A framework for implementing biodiversity offsets: Selecting sites and determining scale. BioScience 59:77-84). This process is best accomplished when bringing together a diverse working team of experts, including agencies, expert biologists, and willing industry partners. To date we have applied this process to oil and gas on public and private lands and the methodology is readily applicable to solar and other types of energy development. If BLM would like to discuss the possible application of EBD to the Valley, please contact David Gann at dgann@tnc.org or Megan Kram at mkram@tnc.org.

Thank you for your consideration. Best of luck as you move forward with the PEIS.

Attachment 1. TNC preliminary analysis of high potential conflict areas overlaid with Solar Energy Study Areas. Of the natural resource values included in this map, conflicts exist only for riparian areas within Los Mogotes East and Antonito Southeast. The apparent conflict within Fourmile East is with potential sandhill crane habitat, for which the map was a rough approximation of habitat. A more accurate map that we acquired from USFWS suggests that there is no known conflict with sandhill crane habitat in the Fourmile East SESA.



Attachment 2a. Natural resource values observed to intersect with BLM Solar Energy Study Areas in the San Luis Valley, Colorado.
Yellow highlights = observed intersections using GIS.

See Attachment 2b (separate attachment) for maps of these intersections.

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the BLM Solar Energy Study Areas				Layer source	Considerations for how BLM should address impacts
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
Bald eagle winter forage		No	No (east of site)	No	No	Yes	CDOW	Discuss with CDOW. Consider setting quantitative objectives for maintenance and enhancement.
Elk highway crossing		No	No	Yes	No	No	CDOW	Discuss with CDOW. Consider setting quantitative objectives for maintenance and enhancement.
Elk severe winter range		No	Yes	No	Yes	Yes	CDOW	Discuss with CDOW. Consider setting quantitative objectives for maintenance and enhancement.
Gunnison's prairie dog colonies – active		No	Yes	No	No	No	CDOW	Discuss with CDOW and FWS. TNC is concerned about any net loss of available habitat (includes active and unknown) for this candidate species. Cumulative impacts to this species such as urbanization; habitat conversion other than urbanization (usually to agriculture and including crops, flooding irrigation, etc.), and poisoning have greatly reduced population numbers and available habitat. Of the states with known prairie dog habitat, Colorado currently maintains by far the largest number of individuals range-wide. Historically, the population strongholds in Colorado included the San Luis Valley and South Park.
Gunnison's prairie dog colonies – unknown		No	Yes	Yes	Yes	No, but adjacent to western boundary of the site	CDOW	

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the BLM Solar Energy Study Areas				Layer source	Considerations for how BLM should address impacts
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
Landscape intactness	n/a	No	Somewhat intact. Least intact of the four study areas	Relatively intact, bisected by local roads	Highly intact, though its eastern border is adjacent to much less intact land.	Highly intact. Most intact of the four study areas.	TNC	This "cost surface" layer shows the relative degree of intactness (and its inverse - fragmentation) across the state of Colorado based on agriculture, urban development, oil and gas development, and roads (primary, secondary, local and primitive). To maintain habitat functionality, consider setting quantitative objectives for acreage to retain as intact for each of the SESAs, based on objectives for species and vegetation more broadly. Ideally, BLM would retain as much area as possible as intact by guiding or encouraging (via incentives?) development toward less-intact SESAs and areas within SESAs.
Pronghorn winter concentration		No	Yes	No	Yes (western half of the site)	No	CDOW	Discuss with CDOW. Consider setting quantitative objectives for maintenance and enhancement.
Streams	n/a	Yes	No	No	Yes	Yes	TNC adapted from Nat'l Hydrography Dataset Plus	Maintain an appropriate distance from streams and riparian areas, ideally as identified by mapping riparian vegetation or floodplains.
TNC portfolio sites	n/a	No	Yes – SLV Grease-wood and Upper SLV	Yes – Great Sand Dunes/ San Luis Lakes.	No	Yes - Punche Valley	TNC	TNC and partners identified the portfolio sites in the Valley as part of the Southern Rocky Mountains Ecoregional Assessment (2001). A network of sites across an ecoregion should, if managed to conserve and restore native plant and animals, conserve a full or nearly full range of biological resources of an ecoregion. The portions of the sites that overlap with the SESAs include the aforementioned values in this table.

Attachment 3. Full list of natural resource collected and/or reviewed for intersection with BLM Solar Energy Study Areas in the San Luis Valley. *Yellow highlights = observed intersections using GIS.*

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the SESAs (N/R = GIS layer collected but not reviewed for intersection)				Layer source	Notes
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
PLACES IMPORTANT TO MANY OF THE VALUES BELOW								
TNC portfolio sites		No	Yes	Yes	No	Yes	The Nature Conservancy (TNC)	DeTilla Gulch intersects with SLV Greasewood and Upper San Luis Valley. Fourmile east with Great Sand Dunes/San Luis Lakes. Antonito South = Punche Valley.
LARGE AND INTACT PATCHES OF ECOLOGICAL SYSTEMS								
Viably-sized patches of matrix vegetation types		No	No	No	No	No	Colorado Nat. Heritage Program (CNHP)	Best and biggest occurrences of patches, necessary to meet goal for the TNC Southern Rocky Mountains Ecoregional Assessment
Landscape intactness		No	Somewhat intact. Least intact of the four study areas	Relatively intact, bisected by local roads	Highly intact, though its eastern border is adjacent to much less intact land.	Highly intact. Most intact of the four study areas.	TNC	This "cost surface" layer shows the relative degree of intactness (and its inverse - fragmentation) across the state of Colorado based on agriculture, urban development, oil and gas development, and roads (primary, secondary, local and primitive).
RIPARIAN AND AQUATIC								

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the SESAs (N/R = GIS layer collected but not reviewed for intersection)				Layer source	Notes
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
Streams		Yes	No	No	Yes	Yes	TNC adapted from National Hydrography Dataset Plus	Includes all perennial, intermittent, etc. No go 1000 ft from wetlands, lakes,
RARE PLANTS AND NATURAL COMMUNITIES								
Potential Conservation Areas – B1 and B2		Yes	No	No	No	No	CNHP	
G1 and G2 rare plants and natural comms		Yes	No	No	No	No	CNHP	
Potential Conservation Areas – B3		No	No	No	No	No	CNHP	
G3 rare plants and natural comms		No	No	No	No	No	CNHP	
OTHER IMPORTANT WILDLIFE VALUES								
Bald eagle roost sites		Yes	No	No	No	No	Colorado Div. of Wildlife (CDOW)	
Bald eagle winter concentration areas		Yes	No	No	No	No (north and west of site)	CDOW	
Bald eagle summer forage		No	No	No	No	No	CDOW	
Bald eagle winter forage		No	No (east of site)	No	No	Yes	CDOW	
Bald eagle winter range		No	N/R	N/R	N/R	N/R	CDOW	
Bighorn migration corridors		No	No	No	No	No	CDOW	
Bighorn production areas		Yes	No	No	No	No	CDOW	
Bighorn severe winter		Yes	No	No	No	No	CDOW	

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the SESAs (N/R = GIS layer collected but not reviewed for intersection)				Layer source	Notes
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
range								
Bighorn summer concentration areas		No	No	No	No	No	CDOW	
Bighorn water source		No	No	No	No	No	CDOW	
Bighorn winter concentration areas		No	No	No	No	No	CDOW	
Bighorn winter range		No	No	No	No	No	CDOW	
Bighorn summer range		No	N/R	N/R	N/R	N/R	CDOW	
Bighorn migration patterns		No	N/R	N/R	N/R	N/R	CDOW	
Bighorn mineral lick		No	N/R	N/R	N/R	N/R	CDOW	
Bighorn overall range		No	N/R	N/R	N/R	N/R	CDOW	
Bighorn winter range		No	N/R	N/R	N/R	N/R	CDOW	
Elk highway crossing		No	No	Yes (see notes)	No	No	CDOW	An elk crossing is mapped along County (?) Road 150 and appears to intersect Fourmile East at its northernmost point along this road.
Elk migration corridors		No	No	No	No	No	CDOW	
Elk production areas		No	No	No	No	No	CDOW	
Elk severe winter range		No	Yes	No	Yes	Yes	CDOW	
Elk summer concentration areas		No	No	No	No	No	CDOW	
Elk winter concentration areas		No	No	No	No	No	CDOW	
Elk limited use areas		No	N/R	N/R	N/R	N/R	CDOW	
Elk migration patterns		No	N/R	N/R	N/R	N/R	CDOW	
Elk overall range		No	N/R	N/R	N/R	N/R	CDOW	
Elk resident population		No	N/R	N/R	N/R	N/R	CDOW	
Elk summer range		No	N/R	N/R	N/R	N/R	CDOW	

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the SESAs (N/R = GIS layer collected but not reviewed for intersection)				Layer source	Notes
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
Elk winter range		No	N/R	N/R	N/R	N/R	CDOW	
Gunnison sage-grouse production area		Yes	No	No	No	No	CDOW	
Gunnison sage-grouse severe winter range		Yes	No	No	No	No	CDOW	
Gunnison sage-grouse winter range		Yes	No	No	No	No	CDOW	
Gunnison sage-grouse overall range		Yes	No	No	No	No	CDOW	
Mule deer concentration area		No	No	No	No	No	CDOW	
Mule deer critical winter range		No	No	No	No	No	CDOW	
Mule deer highway crossing		No	No	No	No	No	CDOW	
Mule deer migration corridor		No	No	No	No	No	CDOW	
Mule deer severe winter range		No	No	No	No	No	CDOW	
Mule deer winter concentration area		No	No	No	No	No	CDOW	
Mule deer limited use area		No	N/R	N/R	N/R	N/R	CDOW	
Mule deer migration pattern		No	N/R	N/R	N/R	N/R	CDOW	
Mule deer overall range		No	N/R	N/R	N/R	N/R	CDOW	
Mule deer resident population		No	N/R	N/R	N/R	N/R	CDOW	
Mule deer summer range		No	N/R	N/R	N/R	N/R	CDOW	
Mule deer winter range		No	N/R	N/R	N/R	N/R	CDOW	

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the SESAs (N/R = GIS layer collected but not reviewed for intersection)				Layer source	Notes
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
Pronghorn concentration area		No	N/R	N/R	N/R	N/R	CDOW	
Pronghorn limited use area		No	N/R	N/R	N/R	N/R	CDOW	
Pronghorn migration corridor		No	No	No	No	No	CDOW	
Pronghorn overall range		No	N/R	N/R	N/R	N/R	CDOW	
Pronghorn perennial water		No	N/R	N/R	N/R	N/R	CDOW	
Pronghorn resident population		No	N/R	N/R	N/R	N/R	CDOW	
Pronghorn severe winter range		No	No	No	Yes	No	CDOW	
Pronghorn winter concentration		No	Yes	No	Yes (western half of the site)	No	CDOW	
Pronghorn winter range		No	N/R	N/R	N/R	N/R	CDOW	
Sandhill crane habitat		Yes	No	Yes	No	No	TNC	Represented by a 1-mile buffer of wildlife refuges and conservation easements
Gunnison's prairie dog colonies -- active		No	Yes	No	No	No	CDOW	We don't have this data yet, but hope to collect it. Candidate for listing in this part of the range
Gunnison's prairie dog colonies -- inactive		No	No	No	No	No	CDOW	

GIS layers collected	Status of species	Included in TNC prelim. analysis	Intersection with the SESAs (N/R = GIS layer collected but not reviewed for intersection)				Layer source	Notes
			DeTilla Gulch	Fourmile East	Los Mog. East	Antonito SE		
Gunnison's prairie dog colonies -- unknown		No	Yes	Yes	Yes	No, but adjacent to western boundary of the site	CDOW	



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Date: April 14, 2009

To: Ray Brady, Bureau of Land Management

From: Colorado Field Office Energy Team

Subject: **Solar energy development in the San Luis Valley, Colorado: Key ecological values and highest potential conflicts with natural resource values**

Dear Ray:

At the request of The Nature Conservancy's (TNC) Senior Policy Advisor to BLM, Julie Falkner, we have made an initial attempt to identify (1) key natural resource values in the San Luis Valley (SLV) and (2) some of the highest conflict areas with solar energy development. We appreciate this opportunity to inform BLM's efforts to identify solar energy zones and are excited to contribute to the discussion.

We hope that this exchange marks the beginning of our conversations with BLM about the SLV, and would value the chance to explore more deeply the opportunities and challenges for solar energy development in this ecologically significant area. As BLM is aware, zoning for solar energy development is a highly complex topic that warrants careful thought. This document represents a starting point of key considerations from the Conservancy's perspective.

I. Key Ecological Values in the San Luis Valley

In general, we would urge BLM to first and foremost take into account the species and vegetation values below when identifying solar energy zones in the SLV:

- **Large and intact blocks of vegetation such as sagebrush.** The maintenance of large and functional blocks of vegetation is a prudent approach to the conservation of sensitive wildlife and other species. It has been shown in many studies that surface disturbance by roads and land conversion (such as to solar energy development) leads to changes in species composition and population size. The SLV contains many large and relatively intact patches of systems such as winterfat shrublands, greasewood shrublands, stabilized dune shrublands and grasslands, sagebrush shrublands, and large wetlands. Any development of solar energy infrastructure should take these ecological systems into account and design activities such that it minimally impacts them.
- **Riparian areas.** The San Luis Valley is the headwaters of the Rio Grande River. Its waters are critical for the wildlife, plant communities, and the people of the Valley. The headwaters are relatively isolated by geography and therefore support several fish species that are endemic or nearly so to the area (Rio Grande Cutthroat Trout, Rio Grande Sucker, and the Rio Grande Chub). The riparian areas of some portions of the river

support the listed Southwestern Willow Flycatcher. The upper end of the San Luis Valley is a closed basin and supports some of the most extensive aquifers in the entire region. The high water table supports extensive wetlands that are important for many wetland-associated species. Many of these once more extensive wetlands are now altered by human land use, making the remaining wetlands of even greater significance. Developments of any kind should protect the rivers, streams, riparian areas, wetlands, and ecological services of these important resources.

- **Irreplaceable species and communities and the areas necessary to support them.** We consider “irreplaceable” species and natural communities to be those that are ranked as *critically imperiled* or *imperiled* by the Colorado Natural Heritage Program (CNHP) and NatureServe.¹ These species and communities, due to their very rarity, are relatively vulnerable to extinction. Such species include but are not limited to a number of BLM Special Status Species. Examples of irreplaceable species in the SLV include the Rio Grande cutthroat trout, the Gunnison sage-grouse and the Great Sand Dunes tiger beetle.
- **Selected other important wildlife habitats.** All of the above values can be considered wildlife habitats. However, they do not directly address the places needed for species’ life cycles which are also important to consider. The Colorado Division of Wildlife has mapped many key habitats. Examples include production areas and summer concentration areas for bighorn sheep and roosting areas for bald eagles.
- **Places that are important to many of the aforementioned values combined.** It is important to consider the combined values of species and vegetation – not just the individual values alone. “The sum of the whole is greater than its parts,” so the saying goes. For example, an area that is important to bald eagles, bighorn sheep, one or more rare plants, and is part of a large and intact patch may pose higher conflicts for solar energy development than an area that is important for just one or two of those values. In such areas the design of infrastructure is challenging, but highly important.

We would welcome the opportunity to work with BLM and others in considering how best to incorporate these considerations in order to avoid, minimize, and potentially mitigate environmental impacts associated with solar energy development.

¹ From the CNHP website: **Critically Imperiled** - Typically 5 or fewer occurrences or less than 1000 remaining individuals. **Imperiled** - Typically 6 to 20 occurrences or between 1,000 and 3,000 remaining individuals. (<http://www.cnhp.colostate.edu/heritage.html>).

II. Highest conflict areas in the San Luis Valley

As a first step toward addressing the values above, we attempted to delineate areas within the San Luis Valley where the development of solar energy could dramatically conflict with areas of significant and potentially irreplaceable natural resource values. See map attached.

Since the entire Valley floor appears to be high potential for solar development, we identified the key potential conflicts throughout the Valley and beyond that we believe to be most significant from an ecological/conservation perspective based on a preliminary analysis, and for which we had available data. The map includes the following areas, see Attachment 2 for rationale:

- Bald eagle roost sites and winter concentration areas
- Bighorn sheep production areas and severe winter range
- Gunnison sage-grouse production Areas, severe winter Range, winter Range, and overall range
- Globally imperiled plants and natural communities as ranked by CNHP
- Riparian areas
- Potential Conservation Areas as identified by the CNHP
- Sandhill crane habitat

In general, these highest values represent species, habitats, or locations which, if significantly altered, might greatly increase the impacts to a species or suite of species, thereby increasing the chances of extinction or extirpation. In other cases the risk would be to a recognized population rather than a species per se. The analysis is not comprehensive or exhaustive but limited to those areas and instances where solar energy development could have particularly significant impacts. See Attachment 3 for the full list of maps we considered for this initial exercise, which also represent layers that could be incorporated into a more thorough analysis.

The map of highest conflicts is a starting point. Outside this initial identification of “high potential conflict” areas lie regions of lesser conflict that will require deeper analysis and consideration of impacts to an accumulation of overlapping conservation interests and priorities. Theoretically, overlapping areas of lower conflict could result in additional high conflict areas. For example, although we did not believe that certain important values (e.g., elk winter range, large and intact blocks of habitat, etc.) warranted the distinction of “highest conflict” in and of themselves, these values combined could represent high conflict zones.

III. Other opportunities in the San Luis Valley

We have identified initial high conflict areas because of key ecological values. We have also indicated that other areas not included in the map might be high conflict areas when considering a combination of values. Importantly there are other highly important ecological values that could be impacted, but are not indicated herein because we believe that careful consideration and design practices will provide for acceptable development. The most important considerations would be for impacting the smallest area possible, co-development with existing impacts, and minimizing fragmentation or secondary impacts. We look forward to working with the BLM or any party that would include this type of best science and best practices in the development of our important energy resources.

Please feel free to contact us with any questions. We would welcome any feedback and the opportunity to converse with you about this important endeavor.

Best regards,

\s\ Heidi Sherk
Director of External Affairs
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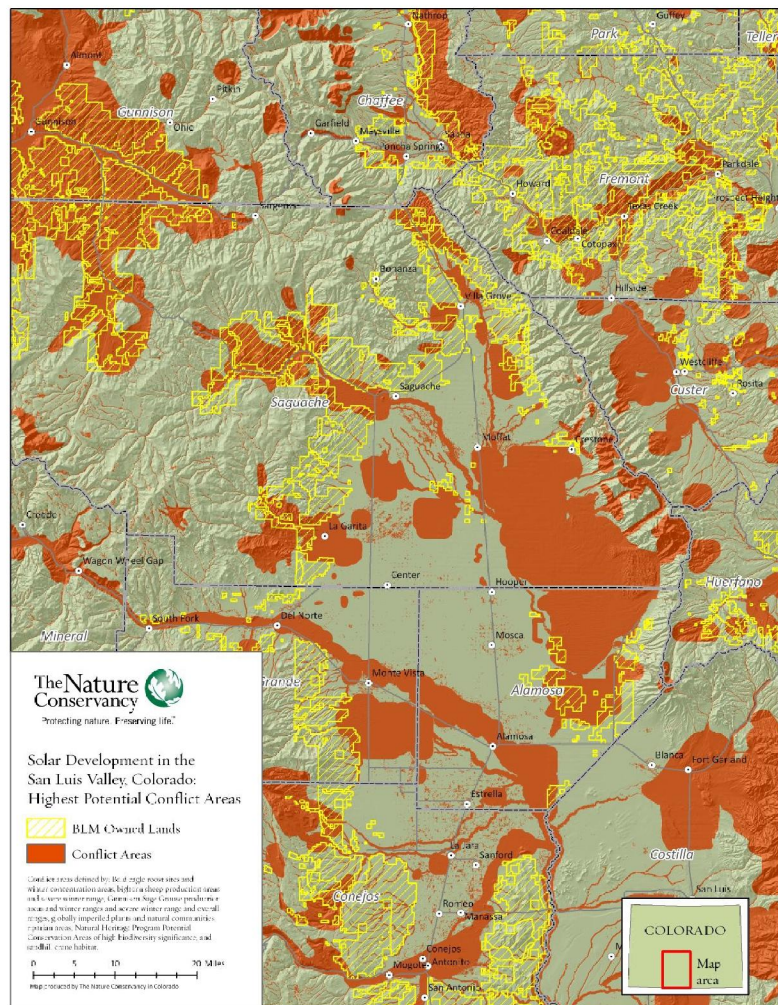
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Attachment 1. Map of highest potential conflict areas in the San Luis Valley



Attachment 2. Sources of the highest conflict areas as identified on the map

This table describes each input to the high conflict map.

Areas included in the map	Rationale
Sandhill crane habitat, as represented by a 1-mile buffer around the Baca National Wildlife Refuge and conservation easements	Although a rough estimation, the area includes stopover habitat during spring and fall migrations for the entire Rocky Mountain population of sandhill cranes.
Riparian areas, as represented by a buffer of 500 ft on either side of the center line of streams (perennial and intermittent).	Includes all perennial, intermittent, etc. There are several rare or imperiled and priority fish species in the area, habitat for the Southwest Willow Flycatcher, rare plant habitat, known populations of Northern Leopard Frogs, and important wetlands in the area. Best management practices and conservation science strongly suggests that avoidance of not just the wetlands area, but a significant upland area is important to retaining species, natural communities, and ecosystem services of aquatic habitats. Note that 500' on either side of the streams is a rough indicator and could be larger or smaller depending on stream size, presence of selected species, existing land use, and other factors.
Potential Conservation Areas ranked as B1 and B2	CNHP delineates Potential Conservation Areas as a first estimation of the area needed to conserve the focal species or community for which the area was designed. By the areas that CNHP has ranked as highest for their biological significance (B1 and B2), we have selected those areas designed for the most rare/imperiled species or natural communities. Compromising these areas could increase the chances of losing a species or one of a small number of populations.
Globally imperiled (G1 and G2) rare plants and natural communities	These are the most rare and imperiled examples of plants, animals, and natural communities. Alteration of these populations could result in a greater likelihood of extinction or extirpation – also increasing the chances of the species being listed under the Endangered Species Act.
Bald Eagle Roost Sites	Bald eagles depend on relatively secluded and safe areas for roosting, particularly in the winter. Such areas can be limiting and are therefore included as exclusion zones.
Bald Eagle Winter Concentration Areas	Bald eagles congregate near predictable food supplies during the often stressful winter season. Such areas have a disproportional influence on winter survival.
Bighorn Production Areas	Bighorn sheep populations are scattered and generally small in the Southern Rocky Mountains. They are also susceptible to disease, disturbance, and hard winters. Production areas are key to population success.
Bighorn Severe Winter Range	Highly stressful conditions can occur in the Southern Rocky Mountains during winter, increasing mortality from disease,

Areas included in the map	Rationale
	starvation, and predation. Loss of areas known by sheep bands as severe winter range can have large impacts to populations.
Gunnison Sage Grouse Production Area	These areas are already designated by BLM as Restricted Surface Occupancy. The Gunnison Sage-grouse is among the most imperiled species in North America. This species is highly sensitive to habitat disruption and the erection of upright structures. Avoidance of its habitat is considered a key conservation strategy, particularly in areas near the lekking grounds.
Gunnison Sage Grouse Severe Winter Range	The Gunnison Sage-grouse is among the most imperiled species in North America. This species is highly sensitive to habitat disruption and the erection of upright structures. Avoidance of its habitat is considered a key conservation strategy, especially for areas considered to be safe-havens during harsh winters.
Gunnison Sage Grouse Winter Range	Same as above.
Gunnison Sage Grouse Overall Range	Same as above. Note also: this layer may be a compilation of the above Gunnison Sage-grouse habitat types; however, it may be larger and include areas recently vacated by the grouse, but suitable and important for grouse recovery.
Gunnison prairie dog colonies – active	We don't have these data yet, but hope to collect it. Candidate for listing in this part of the range including the entire relevant part of the Southern Rocky Mountain Ecoregion. Disruption or removal of these colonies may increase the risk to this species, making a listing more likely.
Gunnison prairie dog colonies – unknown	We don't have digital data for this category at this time, but hope to collect it soon. These prairie dog colonies were known to be occupied but the current status is unknown. They are important components of the suitable habitat and possibly the population of the Gunnison's prairie dog.

Attachment 3. Full suite of available map layers that we considered.

As a next step, BLM and/or TNC and other partners could choose from among these layers to complete a more thorough analysis of important areas for natural resources and associated potential conflicts with solar energy development.

GIS layers available	Included in map of highest conflicts?
Places important to many of the values below	
Ecoregional conservation areas as identified by The Nature Conservancy	Not at this time, however, inclusion in these areas strongly suggests a need to include the strongest conservation design principles.
Large and intact patches of ecological systems	
Biggest and best patches in the Southern Rocky Mountains ecoregion (which includes the San Luis Valley)	Not at this time
Riparian and aquatic	
Riparian areas, as represented by a buffer of 500 ft. on either side of the center line of streams (perennial and intermittent).	Yes. We concluded that a rough estimate would be 500' on either side of a stream of any size. This may underestimate the area on larger streams and overestimate the needed area on the smallest streams.
Irreplaceable species (rare plants and natural communities)	
Rare plants and natural communities ranked as G1 and G2	Yes. Where available, the "buffer" would be similar to the applicable potential conservation area designed for this species or occurrence unless other information is available
Rare plants and natural communities ranked as G3	Not at this time
Potential Conservation Areas ranked as B1 and B2	Yes
Potential Conservation Areas ranked as B3	Not at this time
Other important wildlife values	
Bald eagle active nest sites	Not at this time
Bald eagle roost sites	Yes
Bald eagle summer forage	Not at this time
Bald eagle winter concentrations	Yes
Bald eagle winter forage	Not at this time

GIS layers available	Included in map of highest conflicts?
Bald eagle winter range	Not at this time
Bald eagle winter roost sites	Not at this time
Bighorn migration corridors	Not at this time
Bighorn migration patterns	Not at this time
Bighorn mineral licks	Not at this time
Bighorn overall range	Not at this time
Bighorn production areas	Yes
Bighorn severe winter range	Yes
Bighorn summer concentration areas	Not at this time
Bighorn summer range	Not at this time
Bighorn water sources	Not at this time
Bighorn winter concentration areas	Not at this time
Bighorn winter range	Not at this time
Bighorn winter range	Not at this time
Cutthroat trout habitat - designated	Not at this time*. In particular, occupied or designated restoration zones.
Elk highway crossings	Not at this time
Elk limited use areas	Not at this time
Elk migration corridors	Not at this time
Elk migration patterns	Not at this time
Elk overall range	Not at this time
Elk production areas	Not at this time
Elk resident population area	Not at this time
Elk severe winter range	Not at this time
Elk summer concentration areas	Not at this time
Elk summer range	Not at this time
Elk winter concentration areas	Not at this time
Elk winter range	Not at this time
Gunnison pdog colonies – active	Not at this time.* The Rocky Mountain population of this species was recently designated as a candidate for listing.
Gunnison pdog colonies – inactive	Not at this time
Gunnison pdog colonies – unknown	Not at this time*
Gunnison sage-grouse overall range	Yes
Gunnison sage-grouse production areas	Yes
Gunnison sage-grouse severe winter range	Yes

GIS layers available	Included in map of highest conflicts?
Gunnison sage-grouse winter range	Yes
Mule deer concentration area	Not at this time
Mule deer critical winter range	Not at this time
Mule deer highway crossing	Not at this time
Mule deer limited use areas	Not at this time
Mule deer migration corridors	Not at this time
Mule deer migration patterns	Not at this time
Mule deer overall range	Not at this time
Mule deer resident population areas	Not at this time
Mule deer severe winter range	Not at this time
Mule deer summer range	Not at this time
Mule deer winter concentration areas	Not at this time
Mule deer winter range	Not at this time
Pronghorn concentration areas	Not at this time
Pronghorn limited use areas	Not at this time
Pronghorn migration corridors	Not at this time
Pronghorn overall range	Not at this time
Pronghorn perennial water	Not at this time
Pronghorn resident population area	Not at this time
Pronghorn severe winter range	Not at this time
Pronghorn winter concentration areas	Not at this time
Pronghorn winter range	Not at this time
Raptor active nest sites (bald and golden eagles, ferruginous hawk, osprey, northern goshawk, peregrine and prairie falcons)	Not at this time
Sandhill crane habitat as represented by a 1-mile buffer of wildlife refuge and conservation easements (1 mile)	Yes. This is a rough estimate but is likely to protect the critical roosting area of the crane population.

* Maps exist for these features but we do not have them at present. If we did have the maps, we would have included them in the map of highest conflicts.